AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the present application.

1. (Currently Amended) In a GM, Solvay, or GM type pulse tube refrigerator a valve assembly comprising at least a valve disc and at least a valve seat and at least a thrust ball bearing in which one of the face of the valve disc and the face of valve seat is in contact with the face of the thrust ball bearing, wherein the thrust ball bearing is arranged between the valve disc and the valve seat.

2. (Currently Amended) A valve assembly in accordance with claim 1 in which the thrust ball bearing is attached to the valve seat and the face of the valve disc is in contact with the face of the thrust ball bearing.

3. (Currently Amended) A valve assembly in accordance with claim 1 in which the thrust ball bearing is attached to the valve disc and the face of the valve seat is in contact with the face of the thrust ball bearing.

4. (Currently Amended) A valve assembly in accordance with claim 1 in which the thrust ball bearing is fixed by a fixture.

5. (Currently Amended) In a GM, Solvay, or GM type pulse tube refrigerator a valve assembly comprising at least a valve disc and at least a valve seat and at least a thrust ball bearing in which

initially the face of the valve disc and the face of valve seat are in contact with each other, wherein the thrust ball bearing is arranged between the valve disc and the valve seat.

6. (Currently Amended) A valve assembly in accordance with claim 5 in which the thrust ball bearing is attached to the valve seat.

7. (Currently Amended) A valve assembly in accordance with claim 5 in which the thrust ball bearing is attached to the valve disc.

8. (Currently Amended) A valve assembly in accordance with claim 5 in which at least one of the valve seat and the valve disc are in contact with the face of the thrust ball bearing, and the thrust ball bearing is fixed by a fixture.

9. (Currently Amended) A low torque, reduced wear rotary valve unit comprising a valve disc, a valve seat, and a thrust ball bearing, wherein the thrust ball bearing supports the rotating valve disc relative to the valve seat such that ~~the gap between them varies from light contact to~~ a very small gap is formed by arranging the thrust ball bearing between the valve disc and the valve seat.

10. (Currently Amended) The valve unit of claim 9 where the face of the valve seat and the face of the valve disc are separated from each other by ~~a distance~~ the very small gap of up to 25 μm.

11. (Currently Amended) A low torque, reduced wear rotary valve unit comprising a valve disc,

a valve seat, and a thrust ball bearing, wherein all of the force typically exerted on the face of the valve seat is transferred to the face of the thrust ball bearing by arranging the thrust ball bearing between the valve disc and the valve seat.

12. (Currently Amended) A method of reducing the torque required to turn a multiple port rotary disc valve by limiting [[the]] a friction force between [[the]] a valve disc and [[the]] a valve seat comprising interposing a thrust ball bearing between the valve disc and the valve seat to support the rotating valve disc.